Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

Noninvasive treatments for acute, subacute, and chronic low back pain: a clinical practice guideline from the American College of Physicians.

Bibliographic Source(s)

Qaseem A, Wilt TJ, McLean RM, Forciea MA, Clinical Guidelines Committee of the American College of Physicians. Noninvasive treatments for acute, subacute, and chronic low back pain: a clinical practice guideline from the American College of Physicians. Ann Intern Med. 2017 Apr 4;166(7):514-30. [184 references] PubMed

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Chou R, Qaseem A, Snow V, Casey D, Cross JT Jr, Shekelle P, Owens DK, Clinical Efficacy Assessment Subcommittee of the American College of Physicians, American College of Physicians, American Pain Society Low Back Pain Guidelines Panel. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. Ann Intern Med. 2007 Oct 2;147(7):478-91.

This guideline meets NGC's 2013 (revised) inclusion criteria.

NEATS Assessment

National Guideline Clearinghouse (NGC) has assessed this guideline's adherence to standards of trustworthiness, derived from the Institute of Medicine's report Clinical Practice Guidelines We Can Trust.

= Poor = Fair = Good = Very Good = Excellent

Assessment	Standard of Trustworthiness
YES	Disclosure of Guideline Funding Source

▮▮▮▮▮	Disclosure and Management of Financial Conflict of Interests
	Guideline Development Group Composition
UNKNOWN	Multidisciplinary Group
YES	Methodologist Involvement
▮▮▯▯▯	Patient and Public Perspectives
	Use of a Systematic Review of Evidence
▮▮▮▮▮	Search Strategy
▮▮▮▮▮	Study Selection
▮▮▮▮▮	Synthesis of Evidence
	Evidence Foundations for and Rating Strength of Recommendations
▮▮▮▮▮	Grading the Quality or Strength of Evidence
▮▮▮▮▮	Benefits and Harms of Recommendations
▮▮▮▮▮	Evidence Summary Supporting Recommendations
▮▮▮▮▮	Rating the Strength of Recommendations
▮▮▮▮▮	Specific and Unambiguous Articulation of Recommendations
▮▮▯▯▯	External Review
▮▮▮▮▮	Updating

Regulatory Alert

FDA Warning/Regulatory Alert

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

August 31, 2016: Opioid pain and cough medicines combined with benzodiazepines : A U.S. Food and Drug Administration (FDA) review has found that the growing combined used of opioid medicines with benzodiazepines or other drugs that depress the central nervous system (CNS) has resulted in serious side effects, including slowed or difficult breathing and deaths. FDA is adding Boxed Warnings to the drug labeling of prescription opioid pain and prescription opioid cough medicines and benzodiazepines.

Recommendations

Major Recommendations

Definitions for the strength of evidence (High, Moderate, Low, or insufficient evidence to determine net benefits or risks) and the strength of the recommendations (Strong or Weak) are provided at the end of the "Major Recommendations" field.

Recommendation 1: Given that most patients with acute or subacute low back pain improve over time regardless of treatment, clinicians and patients should select nonpharmacologic treatment with superficial heat (moderate-quality evidence), massage, acupuncture, or spinal manipulation (low-quality evidence). If pharmacologic treatment is desired, clinicians and patients should select nonsteroidal anti-inflammatory drugs (NSAIDs) or skeletal muscle relaxants (SMRs) (moderate-quality evidence). (Grade: strong recommendation)

Clinicians should inform all patients of the generally favorable prognosis of acute low back pain with or without sciatica, including a high likelihood for substantial improvement in the first month. Clinicians should also provide patients with evidence-based information with regard to their expected course, advise them to remain active as tolerated, and provide information about effective self-care options. Clinicians and patients should use a shared decision-making approach to select the most appropriate treatment based on patient preferences, availability, harms, and costs of the interventions. Nonpharmacologic interventions shown to be effective for improving pain and function in patients with acute or subacute low back pain include superficial heat (moderate-quality evidence and moderate improvement in pain and function) and massage (low-quality evidence and small to moderate improvement in pain and function). Low-quality evidence showed that acupuncture had a small effect on improving pain and spinal manipulation had a small effect on improving function compared with sham manipulation but not inert treatment. Harms of nonpharmacologic interventions were sparsely reported, and no serious adverse events were reported. Superficial heat was associated with increased risk for skin flushing, and massage and spinal manipulation were associated with muscle soreness.

The committee recommends that the choice between NSAIDs and SMRs be individualized on the basis of patient preferences and likely individual medication risk profile. Treatment with NSAIDs resulted in a small improvement in both pain intensity (moderate-quality evidence) and function (low-quality evidence), and treatment with SMRs resulted in a small improvement in pain relief (moderate-quality evidence). There was no evidence for the effect of SMRs on function. NSAIDs are associated with gastrointestinal and renal risks. Clinicians should therefore assess renovascular and gastrointestinal risk factors before prescribing NSAIDs and recommend the lowest effective doses for the shortest periods necessary. Although they are associated with lower risk for adverse effects than nonselective NSAIDs, cyclooxygenase-2 (COX-2)–selective NSAIDs were not assessed for improvement in pain or function. Skeletal muscle relaxants are associated with central nervous system adverse effects, especially sedation.

The updated evidence showed that acetaminophen was not effective at improving pain outcomes versus placebo. However, this study assessed pain at 3 weeks after the intervention, and evidence from head-to-head trials showed no difference between acetaminophen and NSAIDs. Low-quality evidence showed that systemic steroids were not effective in treating acute or subacute low back pain, and the committee recommends against these drugs for treatment of acute low back pain.

Recommendation 2: For patients with chronic low back pain, clinicians and patients should initially select nonpharmacologic treatment with exercise, multidisciplinary rehabilitation, acupuncture, mindfulness-based stress reduction (moderate-quality evidence), tai chi, yoga, motor control exercise, progressive relaxation, electromyography biofeedback, low-level laser therapy, operant therapy, cognitive behavioral therapy, or spinal manipulation (low-quality evidence). (Grade: strong recommendation)

Nonpharmacologic interventions are considered as first-line options in patients with chronic low back pain because fewer harms are associated with these types of therapies than with pharmacologic options. It is important that physical therapies be administered by providers with appropriate training. Moderate-quality evidence showed that exercise therapy resulted in small improvements in pain and function.

Specific components associated with greater effects on pain included individually designed programs, supervised home exercise, and group exercise; regimens that included stretching and strength training were most effective. Moderate-quality evidence showed that, compared with usual care, multidisciplinary rehabilitation resulted in moderate pain improvement in the short term (<3 months), small pain improvement in the long term, and small improvement in function in both the short and long term. Low-quality evidence showed that multidisciplinary rehabilitation resulted in a moderate improvement in pain and a small improvement in function compared with no multidisciplinary rehabilitation. Acupuncture had a moderate effect on pain and function compared with no acupuncture (moderate-quality evidence) and a moderate effect on pain with no clear effect on function compared with sham acupuncture (low-quality evidence). Moderate-quality evidence showed that mindfulness-based stress reduction resulted in small improvements in pain and function (small effect), and 1 study showed that it was equivalent to cognitive behavioral therapy (CBT) for improving back pain and function.

Low-quality evidence showed that tai chi had a moderate effect on pain and a small effect on function. Tai chi sessions in included studies lasted 40 to 45 minutes and were done 2 to 5 times per week for 10 to 24 weeks. Low-quality evidence showed that yoga improved pain and function by a moderate amount compared with usual care and by a small amount compared with education. Low-quality evidence showed that motor control exercise (MCE) had a moderate effect on pain and a small effect on function. MCE, tai chi, and yoga were favored over general exercise (low-quality evidence).

Low-quality evidence showed that progressive relaxation had a moderate effect on pain and function, electromyography biofeedback and CBT each had a moderate effect on pain and no effect on function, and operant therapy had a small effect on pain and no effect on function. Low-quality evidence showed that low-level laser therapy (LLLT) had a small effect on pain and function. Low-quality evidence showed that spinal manipulation had a small effect on pain compared with inert treatment but no effect compared with sham manipulation. There were no clear differences between spinal manipulation and other active interventions (moderate-quality evidence).

Harms were poorly reported for nonpharmacologic therapies, although no serious harms were reported for any of the recommended interventions. Muscle soreness was reported for exercise, massage, and spinal manipulation.

Ultrasound, transcutaneous electrical nerve stimulation (TENS), and Kinesio taping had no effect on pain or function compared with control treatments (low-quality evidence).

Recommendation 3: In patients with chronic low back pain who have had an inadequate response to nonpharmacologic therapy, clinicians and patients should consider pharmacologic treatment with NSAIDs as first-line therapy, or tramadol or duloxetine as second-line therapy. Clinicians should only consider opioids as an option in patients who have failed the aforementioned treatments and only if the potential benefits outweigh the risks for individual patients and after a discussion of known risks and realistic benefits with patients. (Grade: weak recommendation, moderate-quality evidence)

Pharmacologic therapy should be considered for patients with chronic low back pain who do not improve with nonpharmacologic interventions. NDAIDs had a small to moderate effect on pain (moderate-quality evidence) and no to small effect on function (low-quality evidence) and should be the first option considered. Moderate-quality evidence showed no difference in pain improvement when different NSAIDs were compared with one another. NSAIDs are associated with gastrointestinal and renal risks. Clinicians should therefore assess renovascular and gastrointestinal risk factors before prescribing NSAIDs and should recommend the lowest effective doses for the shortest periods necessary. COX-2–selective NSAIDs were not assessed for improvement in pain or function, although they are associated with lower risk for adverse effects than nonselective NSAIDs.

For second-line therapies, moderate-quality evidence showed that tramadol had a moderate effect on pain and a small effect on function in the short term. Of note, tramadol is a narcotic and, like other opioids, is associated with the risk for abuse. Moderate-quality evidence showed that duloxetine had a small effect on pain and function.

Moderate-quality evidence showed that opioids (morphine, oxymorphone, hydromorphone, and tapentadol) had a small effect on short-term pain and function. Low-quality evidence showed that buprenorphine (patch or sublingual) resulted in a small improvement in pain. Opioids should be the last treatment option considered and should be considered only in patients for whom other therapies have failed because they are associated with substantial harms. Moderate-quality evidence showed no difference in pain or function when different long-acting opioids were compared with one another. Harms of short-term use of opioids include increased nausea, dizziness, constipation, vomiting, somnolence, and dry mouth compared with placebo. Studies assessing opioids for the treatment of chronic low back pain did not address the risk for addiction, abuse, or overdose, although observational studies have shown a dose-dependent relationship between opioid use for chronic pain and serious harms.

Moderate-quality evidence showed that tricyclic antidepressants (TCAs) did not effectively improve pain or function (low-quality evidence) in patients with chronic low back pain, which is contrary to the 2007 guideline. In addition, moderate-quality evidence showed that selective serotonin reuptake inhibitors (SSRIs) did not improve pain.

Definitions

Grading of Quality of Evidence

High-Quality Evidence: Evidence is considered high quality when it is obtained from 1 or more well-designed and well-executed randomized, controlled trials (RCTs) that yield consistent and directly applicable results. This also means that further research is very unlikely to change confidence in the estimate of effect.

Moderate-Quality Evidence: Evidence is considered moderate quality when it is obtained from RCTs with important limitations—for example, biased assessment of the treatment effect, large loss to follow-up, lack of blinding, unexplained heterogeneity (even if it is generated from rigorous RCTs), indirect evidence originating from similar (but not identical) populations of interest, and RCTs with a very small number of participants or observed events. In addition, evidence from well-designed controlled trials without randomization, well-designed cohort or case-control analytic studies, and multiple time series with or without intervention are in this category. Moderate-quality evidence also means that further research will probably have an important effect on confidence in the estimate of effect and may change the estimate.

Low-Quality Evidence: Evidence obtained from observational studies would typically be rated as low quality because of the risk for bias. Low-quality evidence means that further research is very likely to have an important effect on confidence in the estimate of effect and will probably change the estimate. However, the quality of evidence may be rated as moderate or even high, depending on circumstances under which evidence is obtained from observational studies. Factors that may contribute to upgrading the quality of evidence include a large magnitude of the observed effect, a dose–response association, or the presence of an observed effect when all plausible confounders would decrease the observed effect.

Insufficient Evidence to Determine Net Benefits or Risks: When the evidence is insufficient to determine for or against routinely providing a service, the recommendation is graded as "insufficient evidence to determine net benefits or risks." Evidence may be conflicting, of poor quality, or lacking, and hence the balance of benefits and harms cannot be determined. Any estimate of effect that is very uncertain as evidence is either unavailable or does not permit a conclusion.

The American College of Physicians Guideline Grading System*		
Quality of Evidence	**Strength of Recommendation**	
	Benefits Clearly Outweigh Risks and Burden or Risks and Burden Clearly Outweigh Benefits	**Benefits Finely Balanced with Risks and Burden**
High	Strong	Weak
Moderate	Strong	Weak
Low	Strong	Weak

The American College of Physicians Guideline Grading System*		
Quality of Evidence	Strength of Recommendation	
	Benefits Clearly Outweigh Risks and Burden or Risks and Burden Clearly Outweigh Benefits	Benefits Finely Balanced with Risks and Burden
Insufficient evidence to determine net benefits or risks		

*Adopted from the classification developed by the GRADE (Grading of Recommendations Assessment, Development and Evaluation) working group.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Acute, subacute, and chronic low back pain

Guideline Category

Treatment

Clinical Specialty

Chiropractic

Family Practice

Physical Medicine and Rehabilitation

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Chiropractors

Health Care Providers

Physical Therapists

Physician Assistants

Physicians

Guideline Objective(s)

To provide treatment guidance based on the efficacy, comparative effectiveness, and safety of noninvasive pharmacologic and nonpharmacologic treatments for acute (<4 weeks), subacute (4 to 12 weeks), and chronic (>12 weeks) low back pain in primary care

Note: This guideline does not address topical pharmacologic therapies or epidural injection therapies. It serves as a partial update of the 2007 ACP guideline (it excludes evidence on diagnosis).

Target Population

Adults with acute (<4 weeks), subacute (4 to 12 weeks), or chronic (>12 weeks) low back pain

Note: Children or adolescents with low back pain; pregnant women; and patients with low back pain from sources outside the back (nonspinal low back pain), fibromyalgia or other myofascial pain syndromes, and thoracic or cervical back pain were not included in the systematic reviews.

Interventions and Practices Considered

Pharmacologic Treatment

- Nonsteroidal anti-inflammatory drugs (NSAIDs)
- Skeletal muscle relaxants
- Opioids (tramadol)
- Duloxetine

Nonpharmacologic Treatment

- Superficial heat
- Massage
- Acupuncture
- Spinal manipulation
- Exercise
- Multidisciplinary rehabilitation
- Mindfulness-based stress reduction
- Tai chi
- Yoga
- Motor control exercise (MCE)
- Progressive relaxation
- Electromyography biofeedback
- Low-level laser therapy (LLLT)
- Operant therapy
- Cognitive behavioral therapy

Major Outcomes Considered

- Reduction or elimination of low back pain (including related leg symptoms)
- Improvement in back-specific and overall function
- Improvement in health-related quality of life
- Reduction in work disability
- Return to work
- Global improvement
- Number of back pain episodes or time between episodes
- Patient satisfaction
- Adverse effects of interventions

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Searches of Unpublished Data

Description of Methods Used to Collect/Select the Evidence

Note from the National Guideline Clearinghouse (NGC): A systematic evidence review was conducted by the Agency for Healthcare Research and Quality (AHRQ) Pacific Northwest Evidence-based Practice Center (see the "Availability of Companion Documents" field).

Data Sources and Searches

A research librarian searched Ovid MEDLINE (January 2007 through April 2015), the Cochrane Central Register of Controlled Trials, and the Cochrane Database of Systematic Reviews (through April 2015). The reviewers used the prior American College of Physicians/American Pain Society (ACP/APS) review to identify earlier studies. Updated searches were performed through November 2016. They also reviewed reference lists and searched ClinicalTrials.gov .

Study Selection

Two investigators independently reviewed abstracts and full-text articles against prespecified eligibility criteria. The population was adults with nonradicular or radicular low back pain of any duration (categorized as acute [<4 weeks], subacute [4 to 12 weeks], and chronic [≥12 weeks]). Excluded conditions were low back pain due to cancer, infection, inflammatory arthropathy, high-velocity trauma, or fracture; low back pain during pregnancy; and presence of severe or progressive neurologic deficits. They evaluated acetaminophen, NSAIDs, opioids, tramadol and tapentadol, antidepressants, skeletal muscle relaxants, benzodiazepines, corticosteroids, and antiseizure medications versus placebo, no treatment, or other therapies. They also evaluated the combination of 2 medications versus 1 medication alone. Outcomes were long-term (≥1 year) or short-term (≤6 months) pain or function, mood (for antidepressants), risk for surgery (for corticosteroids), return to work, and harms.

Given the large number of medications and interventions, the reviewers included systematic reviews of randomized trials. For each medication or intervention, they selected the most recent, most relevant, and highest-quality comprehensive systematic review based on a validated assessment tool. If more than 1 good-quality systematic review was available, they preferentially selected updates of those used in the ACP/APS review. They supplemented systematic reviews with additional trials. Although they did not include systematic reviews identified in update searches, they checked reference lists for additional studies. Non–English-language articles and abstract-only publications were excluded.

Number of Source Documents

Database searches resulted in 2,847 potentially relevant articles; 156 publications were determined to meet inclusion criteria and were included in the review (nonpharmacologic = 114; pharmacologic = 46). Flow diagrams illustrating the selection process are provided in the *Annals of Medicine* systematic reviews (see the "Availability of Companion Documents" field).

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Grading of Quality of Evidence

High-Quality Evidence: Evidence is considered high quality when it is obtained from 1 or more well-designed and well-executed randomized, controlled trials (RCTs) that yield consistent and directly

applicable results. This also means that further research is very unlikely to change confidence in the estimate of effect.

Moderate-Quality Evidence: Evidence is considered moderate quality when it is obtained from RCTs with important limitations—for example, biased assessment of the treatment effect, large loss to follow-up, lack of blinding, unexplained heterogeneity (even if it is generated from rigorous RCTs), indirect evidence originating from similar (but not identical) populations of interest, and RCTs with a very small number of participants or observed events. In addition, evidence from well-designed controlled trials without randomization, well-designed cohort or case-control analytic studies, and multiple time series with or without intervention are in this category. Moderate-quality evidence also means that further research will probably have an important effect on confidence in the estimate of effect and may change the estimate.

Low-Quality Evidence: Evidence obtained from observational studies would typically be rated as low quality because of the risk for bias. Low-quality evidence means that further research is very likely to have an important effect on confidence in the estimate of effect and will probably change the estimate. However, the quality of evidence may be rated as moderate or even high, depending on circumstances under which evidence is obtained from observational studies. Factors that may contribute to upgrading the quality of evidence include a large magnitude of the observed effect, a dose–response association, or the presence of an observed effect when all plausible confounders would decrease the observed effect.

Insufficient Evidence to Determine Net Benefits or Risks: When the evidence is insufficient to determine for or against routinely providing a service, the recommendation is graded as "insufficient evidence to determine net benefits or risks." Evidence may be conflicting, of poor quality, or lacking, and hence the balance of benefits and harms cannot be determined. Any estimate of effect that is very uncertain as evidence is either unavailable or does not permit a conclusion.

Methods Used to Analyze the Evidence

Meta-Analysis

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Note from the National Guideline Clearinghouse (NGC): A systematic evidence review was conducted by the Agency for Healthcare Research and Quality (AHRQ) Pacific Northwest Evidence-based Practice Center (see the "Availability of Companion Documents" field).

Nonpharmacologic Therapies for Low Back Pain: a Systematic Review for an American College of Physicians Clinical Practice Guideline

Data Extraction and Quality Assessment

One investigator extracted study data, and a second verified the accuracy of the extractions. For systematic reviews, the reviewers abstracted details about review methods and results (Supplement Table 1 of the systematic review). For randomized trials not included in a systematic review, they abstracted details regarding the study, population, and treatment characteristics, as well as the results (Supplement Table 2).

Two investigators independently assessed the quality of each study as good, fair, or poor by using criteria developed by the U.S. Preventive Services Task Force (for randomized trials [Supplement Table 3]) and AMSTAR (A Measurement Tool to Assess Systematic Reviews; for systematic reviews [Supplement Table 4]).

For primary studies included in systematic reviews, the reviewers relied on the quality ratings as

performed in the reviews. They used the overall grade (for example, good, fair, or poor; or high or low) as determined in the systematic review.

They classified the magnitude of effects for pain and function by using the same system used in the American College of Physicians/American Pain Society (ACP/APS) review (see Table 1 in the systematic review). They also reported risk estimates based on the proportion of patients achieving successful pain or function outcomes (such as >30% or >50% improvement).

Data Synthesis and Analysis

The reviewers synthesized data qualitatively for each intervention, stratified according to the duration of symptoms (acute, subacute, or chronic) and presence or absence of radicular symptoms. They reported meta-analysis results from systematic reviews. If statistical heterogeneity was present, they examined the degree of inconsistency and evaluated subgroup and sensitivity analyses. The reviewers did not conduct an updated meta-analysis; rather, they qualitatively examined whether the results of new studies were consistent with pooled or qualitative findings from previous systematic reviews. Qualitative assessments were based on whether the findings from the new studies were in the same direction as those of the previous systematic reviews and whether the magnitude of effects was similar; if previous meta-analyses were available, they assessed whether the estimates and confidence intervals (CIs) from the new studies were encompassed in the CIs of previous pooled estimates. They assessed the strength of evidence (SOE) for each body of evidence as high, moderate, low, or insufficient on the basis of aggregate study quality, precision, consistency, and directness.

Systemic Pharmacologic Therapies for Low Back Pain: a Systematic Review for an American College of Physicians Clinical Practice Guideline

Data Extraction and Quality Assessment

One investigator extracted study data, and a second verified accuracy. For systematic reviews, the reviewers abstracted details about inclusion criteria, search strategy, databases searched, search dates, number and characteristics of included studies, quality assessment methods and ratings, synthesis methods, and results. For randomized trials, they abstracted details about the setting, sample size, eligibility criteria, population characteristics, treatment characteristics, results, and funding source.

Two investigators independently assessed the quality of each study as good, fair, or poor using criteria developed by the U.S. Preventive Services Task Force (for randomized trials) and AMSTAR (A Measurement Tool to Assess Systematic Reviews). For primary studies included in systematic reviews, the reviewers used both the quality ratings and the overall grade (for example, good, fair, or poor, or high or low) as determined in the reviews.

The reviewers classified the magnitude of effects as small/slight, moderate, or large/substantial based on the definitions in the ACP/APS review (see Table 1 in the systematic review). They also reported risk estimates based on the proportion of patients achieving successful pain or function outcomes (for example, >30% or >50% improvement).

Data Synthesis and Analysis

The reviewers synthesized data qualitatively for each intervention, stratified according to the duration of symptoms (acute, subacute, or chronic) and presence or absence of radicular symptoms. They reported meta-analysis results from systematic reviews. If statistical heterogeneity was present, they examined the degree of inconsistency and evaluated subgroup and sensitivity analyses. The reviewers did not conduct an updated meta-analysis; rather, they qualitatively examined whether the results of new studies were consistent with pooled or qualitative findings from previous systematic reviews. Qualitative assessments were based on whether the findings from the new studies were in the same direction as those of the previous systematic reviews and whether the magnitude of effects was similar; if previous meta-analyses were available, they assessed whether the estimates and CIs from the new studies were encompassed in the CIs of previous pooled estimates. They assessed the strength of evidence (SOE) for each body of evidence as high, moderate, low, or insufficient on the basis of aggregate study quality,

precision, consistency, and directness.

Grading the Evidence

This guideline was developed by the American College of Physicians (ACP) Clinical Guidelines Committee (CGC) according to ACP's guideline development process, details of which can be found in the methods paper (see the "Availability of Companion Documents" field). The CGC used the evidence tables in the accompanying evidence reviews and full report when reporting the evidence.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Key Questions Addressed

> What are the comparative benefits and harms of different pharmacologic therapies for acute or chronic nonradicular low back pain, radicular low back pain, or spinal stenosis, including nonsteroidal anti-inflammatory drugs (NSAIDs), acetaminophen, opioids, muscle relaxants, antiseizure medications, antidepressants, corticosteroids, and topical or patch-delivered medications?
> What are the comparative benefits and harms of different nonpharmacologic, noninvasive therapies for acute or chronic nonradicular low back pain, radicular low back pain, or spinal stenosis, including but not limited to interdisciplinary rehabilitation, exercise (various types), physical modalities (ultrasound, transcutaneous electrical nerve stimulation [TENS], electrical muscle stimulation, interferential therapy, heat [various forms], and ice), traction tables/devices, back supports/bracing, spinal manipulation, various psychological therapies, acupuncture, massage therapy (various types), yoga, magnets, and low-level lasers?

Grading the Evidence and Developing Recommendations

This guideline was developed by ACP's Clinical Guidelines Committee (CGC) according to ACP's guideline development process, details of which can be found in the methods paper (see the "Availability of Companion Documents" field). The CGC used the evidence tables in the accompanying evidence reviews and full report when reporting the evidence and graded the recommendations using the ACP's guideline grading system (see the "Rating Scheme for the Strength of the Recommendations" field).

Rating Scheme for the Strength of the Recommendations

The American College of Physicians Guideline Grading System*		
Quality of Evidence	**Strength of Recommendation**	
	Benefits Clearly Outweigh Risks and Burden or Risks and Burden Clearly Outweigh Benefits	**Benefits Finely Balanced with Risks and Burden**
High	Strong	Weak
Moderate	Strong	Weak
Low	Strong	Weak
Insufficient evidence to determine net benefits or risks		

*Adopted from the classification developed by the GRADE (Grading of Recommendations Assessment, Development, and Evaluation) workgroup.

Cost Analysis

Published cost analyses were reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

Peer Review

The guideline underwent a peer review process through the journal and was posted online for comments from American College of Physicians (ACP) Regents and ACP Governors, who represent ACP members at the regional level.

This guideline was approved by the ACP Board of Regents on 2 May 2016.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Acute Low Back Pain

Pharmacologic

- Nonsteroidal anti-inflammatory drugs (NSAIDs): improved pain and function (small effect)
- Skeletal muscle relaxants (SMRs): improved pain (small effect)

Nonpharmacologic

- Heat wrap: improved pain and function (moderate effect)
- Massage: improved pain and function (at 1 but not 5 weeks) (small to moderate effect)
- Acupuncture: improved pain (small effect)
- Spinal manipulation: improved function (small effect)

Chronic Low Back Pain

Pharmacologic

- NSAIDs: improved pain (small to moderate effect) and function (no to small effect)
- Opioids: improved pain and function (small effect)
  - Tramadol: improved pain (moderate effect) and function (small effect)
  - Buprenorphine (patch or sublingual): improved pain (small effect)
- Duloxetine: improved pain and function (small effect)

Nonpharmacologic

Exercise: improved pain and function (small effect)
Motor control exercise (MCE): improved pain (moderate effect) and function (small effect)
Tai chi: improved pain (moderate effect) and function (small effect)
Mindfulness-based stress reduction: improved pain and function (small effect)
Yoga: improved pain and function (small to moderate effect, depending on comparator)
Progressive relaxation: improved pain and function (moderate effect)
Multidisciplinary rehabilitation: improved pain (moderate effect) and function (no to small effect)
Acupuncture: improved pain (moderate effect) and function (no to moderate effect, depending on comparator)
Low-level laser therapy (LLLT): improved pain and function (small effect)
Electromyography biofeedback: improved pain (moderate effect)
Operant therapy: improved pain (small effect)
Cognitive behavioral therapy: improved pain (moderate effect)
Spinal manipulation: improved pain (small effect)

Radicular Low Back Pain

Exercise: improved pain or function (small effect)

See the "Benefits of Nonpharmacologic Therapies" and "Benefits of Pharmacologic Therapies" sections of the original guideline document for additional discussion.

Potential Harms

Harms were generally poorly reported in the reviewed studies.

Pharmacologic

Nonsteroidal anti-inflammatory drugs (NSAIDs): increased adverse effects compared with placebo and acetaminophen (cyclooxygenase-2 [COX-2]–selective NSAIDs decreased risk for adverse effects compared with traditional NSAIDs)
Opioids: nausea, dizziness, constipation, vomiting, somnolence, and dry mouth
Skeletal muscle relaxants (SMRs): increased risk for any adverse event and central nervous system adverse events (mostly sedation)
Benzodiazepines: somnolence, fatigue, lightheadedness
Antidepressants: increased risk for any adverse event

Nonpharmacologic

Poorly reported, but no increase in serious adverse effects. Muscle soreness was reported for exercise, massage, and spinal manipulation.

See the "Harms of Nonpharmacologic Therapies" and "Harms of Pharmacologic Therapies" sections of the original guideline document for additional discussion. Also see Appendix Table 4 in the original guideline document.

Qualifying Statements

Qualifying Statements

- Clinical practice guidelines are "guides" only and may not apply to all patients and all clinical situations. Thus, they are not intended to override clinicians' judgment. All American College of

Physicians (ACP) clinical practice guidelines are considered automatically withdrawn or invalid 5 years after publication or once an update has been issued.
- The authors of this article are responsible for its contents, including any clinical or treatment recommendations.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Patient Resources

Staff Training/Competency Material

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Qaseem A, Wilt TJ, McLean RM, Forciea MA, Clinical Guidelines Committee of the American College of Physicians. Noninvasive treatments for acute, subacute, and chronic low back pain: a clinical practice guideline from the American College of Physicians. Ann Intern Med. 2017 Apr 4;166(7):514-30. [184 references] PubMed

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2017 Apr 4

Guideline Developer(s)

American College of Physicians - Medical Specialty Society

Source(s) of Funding

Financial support for the development of this guideline comes exclusively from the American College of Physicians operating budget.

Guideline Committee

Clinical Guidelines Committee of the American College of Physicians

Composition of Group That Authored the Guideline

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Financial Disclosures/Conflicts of Interest

Dr. McLean reports personal fees from Takeda Pharmaceuticals outside the submitted work and membership in the American College of Physicians Clinical Guidelines Committee and the American College of Rheumatology Quality of Care Committee. Dr. Barry reports grants, personal fees, and nonfinancial support from Healthwise outside the submitted work. Dr. Boyd reports other support from UpToDate outside the submitted work. Authors not named here have disclosed no conflicts of interest. Disclosures can also be viewed at www.acponline.org/authors/icmje/ConflictOfInterestForms.do?msNum=M16-2367. All financial and intellectual disclosures of interest were declared and potential conflicts were discussed and managed. Dr. Manaker participated in the discussion for this guideline but was recused from voting on the recommendations because of an active indirect financial conflict. Dr. Kansagara participated in the discussion for this guideline but was recused from voting on the recommendations because of an inactive direct financial conflict. A record of disclosures of interest and management of conflicts of interest is kept for each Clinical Guidelines Committee meeting and conference call and can be viewed at www.acponline.org/clinical_information/guidelines/guidelines/conflicts_cgc.htm.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Chou R, Qaseem A, Snow V, Casey D, Cross JT Jr, Shekelle P, Owens DK, Clinical Efficacy Assessment Subcommittee of the American College of Physicians, American College of Physicians, American Pain Society Low Back Pain Guidelines Panel. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. Ann Intern Med. 2007 Oct 2;147(7):478-91.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Available from the Annals of Internal Medicine Web site .

Availability of Companion Documents

The following are available:

Chou R, Deyo R, Friedly J, Skelly A, Hashimoto R, Weimer M, Fu R, Dana T, Kraegel P, Griffin J, Grusing S. Nonpharmacologic therapies for low back pain: a systematic review for an American College of Physicians clinical practice guideline. Ann Intern Med. 2017 Apr 4;166(7):493-505. Available from the Annals of Internal Medicine Web site .

Chou R, Deyo R, Friedly J, Skelly A, Weimer M, Fu R, Dana T, Kraegel P, Griffin J, Grusing S. Systemic pharmacologic therapies for low back pain: a systematic review for an American College of Physicians clinical practice guideline. Ann Intern Med. 2017 Apr 4;166(7):480-92. Available from the Annals of Internal Medicine Web site .

Chou R, Deyo R, Friedly J, Skelly A, Hashimoto R, Weimer M, Fu R, Dana T, Kraegel P, Griffin J, Grusing S, Brodt E. Noninvasive treatments for low back pain. Comparative Effectiveness Review no. 169. (Prepared by the Pacific Northwest Evidence-based Practice Center under contract no. 290-2012-00014-I.) AHRQ publication no. 16-EHC004-EF. Rockville (MD): Agency for Healthcare Research and Quality; 2016 Feb. 808 p. Available from the AHRQ Web site .

Qaseem A, Snow V, Owens DK, Shekelle P. The development of clinical practice guidelines and guidance statements of the American College of Physicians: summary of methods. Ann Intern Med. 2010 Aug 3;153(3):194-9. Available from the Annals of Internal Medicine Web site .

A continuing medical education (CME) activity is available from the Annals of Internal Medicine Web site .

Patient Resources

The following is available:

Noninvasive treatments for acute, subacute, and chronic low back pain. Summaries for patients. Ann Intern Med. 2017 Apr 4:166(7):514-30. Available from the Annals of Internal Medicine Web site .

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC Status

This NGC summary was completed by ECRI Institute on December 10, 2007. The information was verified

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